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MONTANA

# GLOSSARY

**7Q10.** A statistical measure for the lowest flow expected for a continuous 7-day period in 10 years.

**ABANDON.** To cease producing gas from a well when it becomes unprofitable. A wildcat (exploration) well may be abandoned after it has been proven nonproductive. Usually, some of the casing is removed and salvaged, and one or more cement plugs placed in the borehole to prevent migration of fluids between formations.

**ABNORMAL PRESSURE.** Pressure exerted by a formation and exceeding or falling below the normal pressure to be expected at a given depth. Normal pressure increases approximately 0.465 psi per foot of depth. Formations with abnormally high pressure must be controlled to prevent a blowout.

**ACID NEUTRALIZING CAPACITY.** The extent to which natural water bodies are able to buffer atmospheric deposition of sulfate and/or nitrate particulate matter from air pollution emission sources.

**ACRE-FOOT.** A term used in measuring the volume of fluid. An acre-foot is the amount of fluid required to cover 1 acre to a depth of 1 foot, or 43,560 cubic feet (325,829 gallons).

**AIR QUALITY.** Air quality is based on the amount of pollutants emitted into the atmosphere and the dispersion potential of an area to dilute those pollutants.

**ALKALINITY.** The quantity and kinds of compounds present in water that collectively shift the pH to the alkaline side of neutrality. See **salinity**.

**ALLOTMENT CATEGORIZATION.** The grouping of livestock grazing allotments into the categories “M” (maintain current satisfactory condition), “I” (improve current unsatisfactory condition), and “C” (manage custodially while protecting existing resource values).

**ALLUVIUM.** General term for debris deposited by streams on river beds, floodplains, and alluvial fans, especially deposits brought down during a flood. Applies to stream deposits of recent time. Does not include below water sediments of seas and lakes.

**ANIMAL UNIT.** A standardized unit of measurement for range livestock or wildlife. Generally, one mature cow, one horse, five sheep,

9.6 antelope, 5.8 deer, or 1.9 elk, based on an average forage consumption of 26 pounds of dry matter per day.

**ANIMAL UNIT MONTH.** A standardized unit of measurement of the amount of forage necessary for the complete sustenance of one animal for one month; also, the measurement of the privilege of grazing one animal for one month.

**ANNULUS OR ANNULAR SPACE.** The space around a pipe in a wellbore, the outer wall of which may be the wall of either the borehole or the casing.

**ANTICLINE.** An arched, inverted-trough configuration of folded and stratified rock layers.

**AQUIFER.** A body of rock that is sufficiently permeable to conduct groundwater and to yield economically significant quantities of water to wells and springs.

**APPLICATION FOR PERMIT TO DRILL, DEEPEN OR PLUG BACK (APD).** The Department of Interior application permit form to authorize oil and gas drilling activities on federal land.

**AREA OF CRITICAL ENVIRONMENTAL CONCERN.** An area that needs special management attention to preserve historic, cultural, or scenic values; to protect fish and wildlife resources or other natural systems or processes; or to protect life and provide safety from natural hazards.

**ARTESIAN.** Groundwater with sufficient pressure to flow without pumping.

**BANKHEAD-JONES FARM TENANT ACT OF 1937.** This Act enabled the government to buy marginal farms and to put the farms back into grazing.

**BASIN.** A closed geologic structure in which the beds dip toward the center; the youngest rocks are at the center of a basin and are partly or completely ringed by progressively older rocks.

**BEDROCK.** The solid, unweathered rock underlying soils.

**BEST AVAILABLE CONTROL TECHNOLOGY (BACT).** The best available air pollution control technology for a given emission source, considering environmental benefits, economic and energy costs,

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as defined by the applicable air quality regulatory authority.

**BITUMINOUS.** The most abundant rank of coal (synonymous with soft coal). It is dark brown to black and burns with a smoky flame.

**BLOCK MANAGEMENT.** Through cooperation with the Montana Fish, Wildlife, and Parks, a Memorandum of Understanding allows the BLM, the private landowners, and Montana Fish, Wildlife, and Parks to close off some public lands administered by BLM in exchange for opening up private lands to hunting. This is done on a rotating basis from year to year.

**BLOOEY PIT.** The pit that receives cuttings and other discharges from a well drilled with air.

**BLOWOUT.** An uncontrolled expulsion of gas, oil, or other fluids from a drilling well. A blowout, or “gusher,” occurs when formation pressure exceeds the pressure applied to it by the column of drilling fluid and when blowout prevention equipment is absent or fails.

**BLOWOUT PREVENTER.** Equipment installed at the well head to prevent the escape of pressure either from the annular space between the casing and drill pipe or from an open hole during drilling and completion operations.

**BRACKISH WATER.** Water that contains relatively moderate concentrations of any soluble salts. Brackish water is saltier than fresh water but not as salty as salt water or brine water.

**BRINE.** Water containing relatively large concentrations of dissolved salts, particularly sodium chloride. Brine has higher salt concentrations than ordinary ocean water.

**BRINE PIT.** An excavated pit used to hold brine produced from a well.

**BROWSE.** As a verb, to consume or to feed on (as a plant); as a noun, the tender shoots, twigs, and leaves of trees and shrubs, often used as food by cattle, antelope, deer, elk, and other animals.

### **BUFFER ZONE.**

1. An area between two different land uses that is intended to resist, absorb or otherwise preclude developments or intrusions between the two use areas.
2. A strip of undisturbed vegetation that retards the flow of runoff water, causing deposition of

transported sediment and reducing sedimentation in the receiving stream.

**CANOPY COVER.** The percentage of ground area under an overstory vegetation that would not be impacted by raindrops falling straight down.

**CASING.** Steel pipe placed in a gas well to prevent the hole from caving.

**CBM EMPHASIS AREA.** For this environmental impact statement, the emphasis area is the Billings and Powder River RMP areas, and Blaine, Park, and Gallatin counties. This is the 16-county area within the BLM State and planning area where there is CBM development interest. See also **planning area**.

**CHANNEL INTEGRITY (STABILITY).** A relative term describing erosion or movement of the channel walls or bottom because of water flow.

**CHECKERBOARD PATTERN.** One in which ownership of sections of land alternates between federal and other ownership, usually private. On a map with different colors denoting type of ownership, the pattern resembles a checkerboard.

**CLAYEY.** A soil containing more than 35 percent clay. The textural classes are sandy clay, silty clay, clay, clay loam, and silty clay loam.

**CLEAN AIR ACT.** Public Law 84-159, established July 14, 1955, and amended numerous times since. The Clean Air Act: establishes federal standards for air pollutants emitted from stationary and mobile sources; authorizes states, tribes and local agencies to regulate polluting emissions; requires those agencies to improve air quality in areas of the country which do not meet federal standards; and to prevent significant deterioration in areas where air quality is cleaner than those standards. The Act also requires that all federal activities (either direct or authorized) comply with applicable local, state, tribal and federal air quality laws, statutes, regulations, standards and implementation plans. In addition, before these activities can take place in non-attainment or maintenance areas, the federal agencies must conduct a Conformity Analysis (and possible Determination) demonstrating the proposed activity will comply with all applicable air quality requirements.

**CLOSED MUD SYSTEM.** A drill mud system that reuses or reclaims all the drilling fluid used. Oil-based mud systems are often closed mud systems.

**COAL BED METHANE.** A clean-burning natural gas found deep inside and around coal seams. The gas has an affinity to coal and is held in place by

pressure from groundwater. Mining for coalbed methane involves drilling into coal seams and discharging large volumes of groundwater to release the gas.

**COLLUVIAL.** Loose, incoherent geological deposits at the bottom of a slope or cliff, having fallen from above.

**COMMUNITIZATION.** The pooling of mineral acreages based on the spacing for a well or wells set by the state or BLM.

**COMPACTION.** The process of packing firmly and closely together; the state of being so packed; for example, mechanical compaction of soil by livestock or vehicular activity. Soil compaction results from particles being pressed together so that the volume of the soil is reduced. It is influenced by the physical properties of the soil, moisture content, and the type and amount of compactive effort.

**COMPLETION.** The activities and methods to prepare a well for production. Includes installation of equipment for production from a gas well.

**CONDITION OF APPROVAL (COA).** Conditions or provisions (requirements) under which an Application for a Permit to Drill or a Sundry Notice is approved.

**CONTINENTAL DEPOSITS.** A sedimentary deposit laid down on land (whether a true continent or only an island) or in bodies of water (whether fresh or saline) not directly connected with the ocean, as opposed to a marine deposit; a glacial, stream, lake, or windborne deposit formed in a nonmarine environment.

**CONTROLLED SURFACE USE (CSU).** Use or occupancy is allowed (unless restricted by another stipulation), but identified resource values require special operational constraints that may modify the lease rights. CSU is used for operating guidance, not as a substitute for the NSO or Timing stipulations.

**CONVEYANCE LOSS.** The percentage reduction in water volume between the time it is discharged to the surface and the time it reaches a perennial stream. This reduction in volume is due to the processes of infiltration and evaporation.

**CORRIDOR.** A strip of land through which one or more existing or potential facilities may be located.

**CRUCIAL WINTER RANGE.** That portion of the winter range on which a wildlife species is dependent for survival during periods of heaviest snow cover.

**CULTURAL RESOURCE.** A term that includes items of historical, archaeological, or architectural items; a remnant of human activity.

**CUMULATIVE IMPACT.** The impact on the environment that results from the positive or negative impacts of an action when added to other past, present, and reasonable foreseeable future actions, regardless of what agency or person performed such action(s).

**DANCING GROUNDS.** An area used in the spring by sharp-tailed grouse for courtship displays and breeding.

**DECIBEL OR dB.** A unit for measuring sound intensity, usually measured on the decibel A weighted scale (dBA) which approximates the sound levels heard by the human ear at moderate sound levels.

**DECIVEW OR dV.** A visual index appropriate for characterizing visibility through uniform hazes, designed to be linear with respect to perceived visual changes over its entire range (from pristine to polluted conditions) in a way that is analogous to the decibel scale for sound. The deciview haze index is calculated based on the logarithmic distribution of the extinction coefficient, where a 10.0 deciview change is about a 10 percent change in extinction coefficient; a small but perceptible scenic change under many circumstances ("just noticeable change").

**DEEPER COAL SEAM.** Designates a coal seam that is deep enough that it can be drilled to at a directional angle from a well pad in one spacing unit to another spacing unit. This avoids the need for constructing additional roads and well pads. The exact depth that the term "deeper" applies to is relative and will vary according to field spacing requirements and local geology.

**DEVELOPMENT WELL.** A well drilled in proven territory (usually within 1 mile of an existing well).

**DISPOSAL WELL.** A well into which produced water from other wells is injected into an underground formation for disposal.

**DRAINAGE (GEOMORPHIC).** A collective term for all the water bodies by which a region is drained; or, all the water features shown on a map.

**DRAINAGE (OIL AND GAS).** The uncompensated loss of hydrocarbons from Federal, Indian tribal or Indian-allotted mineral lands from wells on adjacent non-jurisdictional lands or jurisdictional lands with lower participation, allocation, royalty rate, or

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distribution of funds, resulting in revenue losses to the Federal or Indian lessors.

**DRILL DIRECTIONALLY.** The technique of drilling at an angle from a location at the surface to a different subsurface location at a specific target depth. The degree of angle that a well can be drilled is limited, which is why this technique is not employed for shallow coal seams.

**DRILL RIG.** The mast, drawworks, and attendant surface equipment of a drilling or workover unit.

**DRILL STEM TEST.** The use of a drill-stem testing tool to test a formations potential productivity. The tool is lowered to the formation and is packed off from the above formations. The tool is then operated to sample the formation and the results recorded. Also, called a formation test.

**DROP STRUCTURE.** An in-stream structure of various materials designed to reduce the energy and force of stream flow.

**DRY HOLE.** Any well incapable of producing oil or gas in commercial quantities. A dry hole may produce water, gas or even oil, but not enough to justify production.

**ECOLOGICAL CONDITION.** The present state of vegetation of a site in relation to the potential natural community for the site. Ecological status is use independent. It is an expression of the relative degree to which the kinds, proportions, and amounts of plants in a plant community resemble that of the potential natural community. Four ecological status classes correspond to 0-25, 26-50, 51-75, or 76-100 percent similarity to the potential natural community and are generally called early seral, mid-seral, late seral, and potential natural community, respectively.

**ECOLOGICAL SITE.** A kind of land with a specific potential natural community and specific physical site characteristics, differing from other kinds of land in its ability to produce vegetation and to respond to management.

**ECOSYSTEM.** A biological community, together with its nonliving environment, forming an interacting system inhabiting an identifiable space.

**ELECTRICAL CONDUCTIVITY.** A measure of the salt content of water.

**EMERGENT AQUATIC VEGETATION.** An aquatic plant having part of its vegetative parts above water.

**EMISSION.** Air pollution discharge into the atmosphere, usually specified by mass per unit time.

**ENDANGERED SPECIES.** Those species of plants or animals classified by the Secretary of the Interior or the Secretary of Commerce as endangered pursuant to Section 4 of the Endangered Species Act of 1973, as amended. See also Threatened and Endangered Species.

**ENHANCED RECOVERY.** The use of artificial means to increase the amount of hydrocarbons that can be recovered from a reservoir. A reservoir depleted by normal extraction practices usually can be restored to production by secondary or tertiary methods of enhanced recovery.

**ENTRAINED PARTICULATES.** Particulates contained within auto exhaust; mainly made of carbons.

**EPHEMERAL STREAM.** A stream that flows only after a storm or during snowmelt, and whose channel is, at all times, above the water table.

**EPOCH.** An interval of time based on similar rock formations and fossil groups. Used primarily as subdivisions of the Tertiary and Quaternary Periods.

**EXPLORATION.** Building a two-track road to drill test wells for coalbed methane. See also **development**.

**EXPLORATION WELL.** A well drilled in an area where there is no oil or gas production. Same as a "wildcat" well.

**FAULT.** A fracture surface in rocks along which movement of rock on one side has occurred relative to rock on the other side.

**FLOODPLAIN.** The relatively flat area or lowlands adjoining a body of standing or flowing water that has been or might be covered by floodwater.

**FLOW LINE.** A small diameter pipeline through which fluids move on lease before being sold.

**FORAGE.** Forms of vegetation available for animal consumption.

**FORB.** A broad-leaved herb that is not grass or grasslike.

**FORMATION (GEOLOGIC).** A rock body distinguishable from other rock bodies and useful for mapping or description. Formations may be combined into groups or subdivided into members.

**FRAC FLOWBACK.** During the drilling process, fluid or product returns along fractures in the rock to the point where it is difficult to control; for example, flowback from a point high in the borehole or at the ground surface away from the boring.

**FUGITIVE DUST.** Airborne particles emitted from any source other than through a controllable stack or vent.

**GABIONS.** A hollow cylinder of wickerwork or strap iron constructed like a basket, filled with stones and sunk to form a bar, dike, or similar structure.

**GEOMORPHIC.** Pertaining to the form of the earth or its surface features.

**GROUND COVER.** Vegetation, mulch, litter, or rocks.

**GROUNDWATER.** Subsurface water that is in the zone of saturation. The top surface of the groundwater is the “water table.” Source of water for wells, seepage, and springs.

**GULLYING.** The erosion process whereby water accumulates in narrow channels and, over short periods, removes the soil from the narrow area to considerable depths, ranging from 2 feet to as much as 80 to 100 feet deep.

**GULLY PLUG.** Any form of material placed in an existing gully to reduce the erosional effects of moving water and thereby starting a healing process of the gully.

**HABITAT.** In wildlife management, the major elements of habitat are considered to be food, water, cover, and living space.

**HAZARDOUS WASTE.** (A) Any substance designated pursuant to section 311(b)(2)(A) of the Federal Water Pollution Control Act. (B) Any element, compound, mixture, solution, or substance designated pursuant to section 102 of this Act. (C) Any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act (but not including any waste the regulation of which under the Solid Waste Disposal Act has been suspended by Act of Congress. (D) Any toxic pollutant listed under section 307(a) of the Federal Water Pollution Control Act. (E) Any hazardous air pollutant listed under section 112 of the Clean Air Act. (F) Any imminently hazardous chemical substance or mixture with respect to which the Administrator has taken action pursuant to section 7 of the Toxic Substances Control Act. The term does not include petroleum, including crude oil or any fraction thereof which is not otherwise

specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of this paragraph, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).

**HYDROGEN SULFIDE or H<sub>2</sub>S.** A colorless, highly flammable, and very toxic gas that smells like rotten eggs at low concentrations. At higher concentrations, the sense of smell is lost, therefore becoming impossible to perceive dangerous concentrations.

**INFILTRATION.** The flow of a fluid into a solid substance through pores or small openings; specifically, the movement of water into soil or porous rock.

**INJECTION WELL.** A well used to inject fluids into an underground formation to increase reservoir pressure.

**INTERMITTENT STREAM.** A stream that flows most of the time but occasionally is dry or reduced to pool stage when losses from evaporation or seepage exceed the available streamflow.

**LAND AND WATER CONSERVATION FUNDS.** Federal revenues generated by a tax on federal offshore oil and gas development through the Land and Water Conservation Fund Act; used to acquire highly desirable lands for the United States by the various governmental agencies.

**LEASABLE MINERALS.** Federal minerals subject to lease under the Mineral Leasing Act of 1920, as amended, and supplemented. Includes minerals, such as oil, gas, coal, geothermal, tar sands, oil shale, potassium, phosphate, sodium, asphaltic materials.

**LEASE.**

1. A legal document that conveys to an operator the right to drill for oil and gas.
2. The tract of land, on which a lease has been obtained, where producing wells and production equipment are located.

**LEASE NOTICE.** Provides more detailed information concerning limitations that already exist in law, lease terms, regulations, or operational orders. A lease notice also addresses special items the lessee should consider when planning operations, but does not impose new or additional restrictions. Lease notices attached to leases should not be confused with NTLs (Notices to Lessees).

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**LEK.** A traditional breeding area for grouse species where territorial males display and establish dominance.

**LIGNITE.** A brownish-black coal that is intermediate between peat and subbituminous coal.

**LITHIC SCATTER.** The waste material, chips, and flakes resulting from stone tool manufacture.

**LOAMY.** Soil that is intermediate in texture and properties between sandy and clayey soils. Textural classes are sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, sandy clay loam, and clay loam with clay content between 18 and 35 percent.

**LOCALITY.** The area where paleontologic material is discovered.

**LOCATABLE MINERALS.** Minerals or materials subject to disposal and development through the Mining Law of 1872 (as amended). Generally includes metallic minerals such as gold and silver and other materials not subject to lease or sale.

**MESIC AREA.** A habitat having a moderate amount of moisture available for the support of plant life.

**MINERAL MATERIALS.** Widespread deposits of common clay, sand, gravel, or stone that are not subject to disposal under the 1872 Mining Law, as amended.

**MITIGATION MEASURES.** Methods or procedures developed for the purpose of reducing or lessening the impacts of an action.

**MONITORING.** Specific studies that evaluate the effectiveness of actions taken toward achieving management objectives.

**NATIONAL AMBIENT AIR QUALITY STANDARDS OR NAAQS.** The allowable concentrations of air pollutants in the air specified by the federal government. The air quality standards are divided into primary standards (based on air quality criteria and allowing an adequate margin of safety requisite to protect the public health) and secondary standards (based on air quality criteria and allowing an adequate margin of safety to protect the public welfare from any unknown or expected adverse effects of air pollutants).

**NO SURFACE OCCUPANCY.** Use or occupancy of the land surface for fluid mineral exploration or development is prohibited to protect identified resource values.

**NOTICE TO LESSEES (NTL).** The NTL is a written notice issued by the Authorized Officer. NTLs implement regulations and operating orders, and serve as instructions on specific item(s) of importance within a State, District, or Area.

**PARENT MATERIAL.** The unconsolidated and chemically-weathered mineral or organic matter from which the horizons of soils develop by natural processes.

**PARTICULATE MATTER.** A particle of soil or liquid matter (e.g., soot, dust, aerosols, fumes and mist).

**PERENNIAL STREAM.** A permanent stream that flows 9 months or more out of the year.

**PERMEABILITY.** The ease with which gases, liquids or plant roots pass through a layer of soil. Accepted as a measure of this property is the rate at which soil transmits water while saturated, and may imply how well water passes through the least permeable soil layer.

**pH.** A measure of acidity or alkalinity. A solution with a pH of 7 is neutral, pH greater than 7 (to 14) is alkaline, and a pH less than 7 (to 0) is acidic.

**POST-FLPMA LEASES.** Oil and gas leases issued after the passage of the Federal Land Policy and Management Act of 1976. Where occurring in Wilderness Study Areas, these leases have no valid existing rights and could not impair wilderness values.

**POTENTIAL NATURAL COMMUNITY.** The biotic community that would become established if all successional sequences were completed without interferences under the present environmental conditions.

**PARTS PER MILLION (PPM).** A measurement to identify the amount of particulates in air or water.

**POD.** Describes the general location of a series of wells that tap individual coal seams within a single 80-acre spacing unit. For example, within the Powder River Basin, three coal seams are layered beneath the surface. On the surface, an operator may drill three separate wells to different depths to tap these individual seams. The wells may be located within 20 feet of each other, representing a pod of wells.

**PRAIRIE DOG COLONY COMPLEX.** A group of prairie dog colonies distributed so that individual black-footed ferrets can migrate among them commonly and frequently. This distance has been determined to be 7 kilometers (4.4 miles).

**PRE-FLPMA LEASES.** Oil and gas leases issued prior to the passage of the Federal Land Policy and Management Act of 1976. Where occurring in Wilderness Study Areas, these leases have valid existing rights which allow development even if wilderness values may be impaired.

**PREVENTION OF SIGNIFICANT DETERIORATION OR PSD.** A regulatory program under the Clean Air Act (Public Law 84-159, as amended) to limit air quality degradation in areas currently achieving the National Ambient Air Quality Standards. The PSD program established air quality classes in which differing amounts of additional air pollution is allowed above a legally defined baseline level. Almost any additional air pollution would be considered significant in PSD Class I areas (certain large national parks and wilderness areas in existence on August 7, 1977, and specific Tribal lands redesignated since then). PSD Class II areas allow that deterioration associated with moderate, well-controlled growth (most of the country).

**Class I.** An area that allows only minimal degradation above “baseline.” The Clean Air Act designated existing national parks over 6,000 acres and national wilderness areas over 5,000 acres in existence on August 7, 1977, as mandatory Federal Class I Areas. These areas also have special visibility protection. In addition, four tribal governments have redesignated their lands as Class I Areas.

**Class II.** An area that allows moderate degradation above “baseline.” Most of the United States (outside nonattainment areas) is Class II.

**Class III.** Any area that allows the maximum amount of degradation above “baseline.” Although the U.S. Congress allows air quality regulatory agencies to redesignate Class II lands to Class III, none have been designated.

**PRODUCED WATER.** Water produced from oil and gas wells.

**RAPTOR.** Bird of prey with sharp talons and strongly curved beaks (hawks, falcons, owls, and eagles).

**RECLAMATION.** Rehabilitation of a disturbed area to make it acceptable for designated uses. This normally involves regrading, replacement of topsoil, revegetation, and other work necessary to restore it for use.

**RESERVE PIT.**

1. Usually an excavated pit that may be lined with plastic, that holds drill cuttings and waste mud.

2. Term for the pit that holds the drilling mud.

**RIGHT-OF-WAY GRANT.** A document authorizing a nonpossessory, nonexclusive right to use federal lands for the limited purpose of construction, operation, maintenance, and termination of a pipeline, road, or powerline.

**RILL.** Small, conspicuous water channel or rivulet that concentrates runoff; usually less than 6 inches deep.

**RIPARIAN/WETLAND AREA.** An area of land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lakeshores, streams and permanent springs are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil.

**ROAD.** A vehicle route that has either been improved and maintained by mechanical means to ensure relatively regular and continuous use, or been established where vehicle travel has created two parallel tracks lacking vegetation.

**SALINITY.** A measure of the salts dissolved in water. See **alkalinity**.

**SEDIMENT.** Soil, rock particles and organic or other debris carried from one place to another by wind, water, gravity, ice, or other geologic agent.

**SEDIMENTARY ROCK.** A layered rock resulting from the consolidation of sediment, such as shale, sandstone, and limestone.

**SEISMIC OPERATIONS.** Use of explosive or mechanical thumpers to generate shock waves that can be read by special equipment to give clues to subsurface conditions.

**SERIAL COMMUNITY.** One of a series of plant communities that follow one another in time on any given area.

**SERIAL STAGE.** A potential plant community made up of a mix of trees and shrubs.

**SHALLOW COAL SEAM.** Those coal seams that are too shallow to drill to directionally given the area geology and spacing limitations.



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**SHEET EROSION.** The detachment of soil material from the land surface by raindrop impact and its subsequent removal by runoff.

**SHUT IN.** To close the valves on a well so it ceases production.

**SHRUB.** A low, woody plant, usually with several stems; may provide food and/or cover for wildlife.

**SODIUM ADSORPTION RATIO.** An expression of relative activity of sodium ions in exchange reactions with soil, indicating the sodium or alkali hazard to soil. It is a particularly important measure in waters used for irrigation purposes.

**SODIUM-AFFECTED SOIL.** A nontechnical term for sodic soil (also called alkali soil) that contains sufficient sodium to interfere with the growth of most crop plants and in which the exchangeable sodium percentage is 15 or higher. It is also a generic way of describing nonsaline-alkali soil or saline-alkali soil.

**SOIL DEPTH CLASSES.** Classes overlap from 0 to 60 or more inches with specific depths as follows: very shallow 0-10 inches, shallow from 5-30 inches, moderately deep from 20-50 inches, deep from 30-60 inches, and very deep from 50 to more than 60 inches.

**SOIL SERIES.** The lowest category of soil classification, being a subdivision of a family and consisting of soils which are essentially alike in all major profile characteristics except in the texture of the "A" horizon (or surface layer).

**SOIL SURVEY.** The systematic examination, description, classification, and mapping of soils in an area, usually a county. Soil surveys are classified according to the level of detail of field examination. Order I is the most detailed, then Order II, on to Order V which is the least detailed. Most BLM soil surveys are Order II or III.

**SOLID WASTE.** Any solid, semi-solid, liquid, or contained gaseous material that is intended for disposal.

**SOUR WELL.** A condition caused by the presence of hydrogen sulfide in an oil or gas well.

**SPACING UNIT.** The number of acres that one oil or gas well will efficiently drain. The Montana Oil and Gas Commission establishes the size of spacing units for each oil and gas field.

**SPECIES OF SPECIAL INTEREST OR CONCERN.** Animals not yet listed as endangered or threatened but that are undergoing status review by a

federal or state agency. This may include animals whose populations could become extinct by any major habitat change. A species that is particularly sensitive to some external disturbance factors.

**SPLIT ESTATE.** Surface and minerals of a given area in different ownerships. Frequently, the surface is privately-owned while the minerals are federally-owned.

**SPODDING.** To begin drilling; to start the hole.

**STEEP SLOPE.** Slope greater than 30 percent.

**STEP OUT WELL.** A well drilled some distance from a proven well to determine the limits of the oil or gas reservoir.

**STIPULATION.** A condition or requirement attached to a lease or contract, usually dealing with protection of the environment, or recovery of a mineral.

**STRUCTURAL IMPROVEMENTS.** Improvements such as fences, reservoirs, springs, pipelines, waterspreaders, wells, water troughs, land treatments and instream structures. These improvements are for the livestock grazing, wildlife, recreation, watershed and soils programs.

**STRUTTING GROUND.** An area used in the spring by sage grouse for courtship displays and breeding. Synonymous with the term "lek."

**SUBBITUMINOUS.** A black coal, intermediate in rank between lignite and bituminous coal. Distinguished from lignite by higher carbon and lower moisture content.

**SULFUR DIOXIDE OR SO<sub>2</sub>.** A colorless gas formed when sulfur oxidizes, often as a result of burning trace amounts of sulfur in fossil fuels.

**SWEET WELL.** An oil or gas well lacking any significant amounts of hydrogen sulfide.

**SYNCLINES.** A downward, trough-shaped configuration of folded, stratified rocks.

**TERRACE DEPOSITS.** A terrace is one of a series of level surfaces in a stream valley, flanking and more or less parallel to the stream channel. It is above the level of the stream, and represents the dissected remnants of an abandoned flood plain, stream bed, or valley floor produced during a former stage of erosion or deposition.

**TOTAL DISSOLVED SOLIDS (TDS).** The dry weight of dissolved material, organic and inorganic, contained in water.

**TMDL (Total Maximum Daily Load).** A TMDL is the total amount of a pollutant that a water body may receive from all sources without exceeding water quality standards. A TMDL can also be defined as a reduction in pollutant loading that results in meeting water quality standards. The TMDL process was established under Section 303(d) of the Clean Water Act. A TMDL includes both a waste load allocation, which focuses on point sources, and a load allocation, which addresses non-point sources.

**TRANSMISSION LINE.** A large diameter pipeline through which oil or gas moves off lease after being sold.

**TURBIDITY.** An interference to the passage of light through water due to insoluble particles of soil, organic material, micro-organisms, and other materials.

**UNDERGROUND INJECTION CONTROL PROGRAM.** A program administered by the Environmental Protection Agency, primacy State, or Indian Tribe under the Safe Drinking Act to ensure that subsurface waste injection does not endanger underground sources of drinking water.

**UNDERSTORY VEGETATION.** Plants, usually grasses, forbs, and low shrubs, growing beneath the canopy of other plants.

**UNITIZATION.** Pooling of mineral acreages proposed by a company to facilitate the efficient development of a reservoir based on geology and reservoir characteristics of a producing formation or formations.

**UNNECESSARY OR UNDUE DEGRADATION.** Conditions, activities, or practices that:

(1) Fail to comply with one or more of the following: The performance standards in Sec. 3809.420 (43 CFR), the terms and conditions of an approved plan of operations, operations described in a complete notice, and other Federal and State laws related to environmental protection and protection of cultural resources;

(2) Are not “reasonably incident” to prospecting, mining, or processing operations as defined in Sec. 3715.0-5 of this title;

(3) Fail to attain a stated level of protection or reclamation required by specific laws in areas such as the California Desert Conservation Area, Wild and Scenic Rivers, BLM-administered portions of the National

Wilderness System, and BLM-administered National Monuments and National Conservation Areas; or

(4) Occur on mining claims or millsites located after October 21, 1976 (or on unclaimed lands) and result in substantial irreparable harm to significant scientific, cultural, or environmental resource values of the public lands that cannot be effectively mitigated.

**USABLE WATER.** Those waters containing up to 10,000 parts per million of total dissolved solids.

**VIEWSHED.** Landscape that can be directly seen under favorable atmospheric conditions, from a viewpoint or along a transportation corridor.

**WATER QUALITY.** The chemical, physical, and biological characteristics of water with respect to its suitability for a particular use.

**WATERSHED.** All lands which are enclosed by a continuous hydrologic drainage divide and lie upslope from a specified point on a stream.

**WELL COMPLETION.** See **completion**.

**WELL LIFE.** For the purposes of this plan the well life is defined as from the time the well is drilled until the final abandonment of the well is approved.

**WETLANDS.** Permanently wet or intermittently flooded areas where the water table (fresh, saline, or brackish) is at, near, or above the soil surface for extended intervals; where hydric wet soil conditions are normally exhibited, and where water depths generally do not exceed two meters.

**WILDCAT.** A well drilled in an area where no oil or gas production exists.

**WILDCAT WELL.** An exploratory well drilled in an area where there is no oil or gas production (see exploration well).

**WILDERNESS STUDY AREA (WSA).** An area determined to have wilderness characteristics. WSAs are submitted to the President and Congress for wilderness designation. These areas are an interim designation, valid until either designated as wilderness or released to multiple-use management.

**WORKOVER.** To perform one or more remedial operation on a producing well to increase production. Deepening, plugging back, pulling, and resetting the liner are examples of workover operations.

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